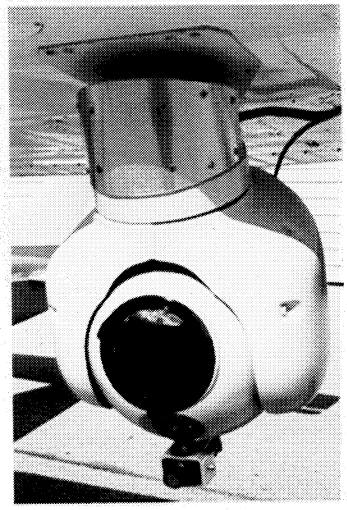
Infrared Scanning

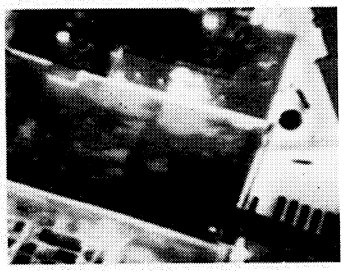
At right is a twin-engine Piper Aztec with an infrared scanning system mounted beneath its nose section; the FLIR 2000A Night Vision System is shown in closeup at right center. The scanner-equipped Aztec is operated by Midwest Infrared Scanning Service (MISS), Galesburg, Illinois, which provides Aeroscan™ infrared thermography services to industrial clients.

Infrared thermograpy, to use the MISS description, "is a relatively new non-contact, non-destructive inspection and testing tool which makes temperatures visible to the human eye." Generally, infrared scanning devices produce images that show—by color or black-and-white shading differences—heat losses through damaged or inadequately insulated walls and roofs. The MISS Aeroscan services are designed to take the guesswork out of industrial roof maintenance and provide companies big savings by identifying the location of moisture damage from roof leaks, effectively targeting maintenance attention. This negates the possibility of missing damaged areas in simple visual inspection, or of needlessly repairing and replacing undamaged roof areas. At far right is an Aeroscan thermogram in which the bright spots identify areas of suspected moisture damage.

Roof-level moisture surveys by thermography experts using hand-held infrared systems are available to industry, but Aeroscan offers a cost advantage, according to MISS; the service is relatively inexpensive because the company can accomplish a number of roof evaluations on a single airplane flight. Says the company: "Typical fees can be one-fourth the cost of a roof-level survey."

Infrared technology dates all the way back to World War II, but accelerated development of infrared imaging systems occurred in the 1960s and 1970s under the combined impetus of military missile guidance requirements and NASA development of space sensory systems. Use of infrared imaging for roof-scanning began in the 1970s, when the Army Corps of Engineers investigated the technique and found it to be a





reliable and cost effective means of locating moisture-damaged roof insulation at Army facilities. At about the same time, with the oil crisis at its peak, Lewis Research Center pioneered infrared roof survey as a national energy conservation measure. Lewis conducted aerial demonstrations, making thermograms that measured heat loss from home and industrial rooftops and pinpointed buildings that were losing excessive heat. The Lewis program heightened awareness of the technology and spurred commercial use of airborne, roof-level and ground-mobile infrared scanning.

In addition to roof evaluations, MISS offers thermographic inspection of underground steam distribution systems and a variety of ground-based infrared inspection services to detect interior heat loss in buildings; indicate maintenance needs for electrical equipment, mechanical systems and piping; and locate deteriorating areas in road beds and bridge decks. ▲

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